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## Canadian Patents Database

(12) **Patent:**

(11) **CA 729419**

(54) **HYPODERMIC INJECTION SYRINGE**

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### ABSTRACT:

CLAIMS: [Show all claims](#)

\*\*\* Note: Data on abstracts and claims is shown in the official language in which it was submitted.

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The present invention relates to a hypodermic injection syringe and more particularly to a protective assembly for the needle of such syringes.

The invention is particularly adaptable to the type of injection syringes now found on the market and which are of such a low manufacturing cost that they may be discarded after use. In such syringes, both the cylinder and the piston thereof are made of plastic material which can easily be molded at very low cost. This type of injection syringe is extremely  
10 useful and possesses many advantages, one of which is certainly its low cost which makes it possible to discard it after use thus avoiding the necessity of cleaning and sterilizing. It is an object of this invention to still improve the usefulness of the known syringe of this type.

With the hypodermic syringe presently on the market, the physician still has to carry with him, when visiting his patients, a bottle of an antiseptic liquid such as ether, alcohol or the like as well as a box of absorbent material such as cotton. Furthermore, every time an injection has to  
20 be made, he has to go through several motions in order to sterilize the skin through which the injection is to be made. All these operations are time consuming and this is rather important particularly for the physician whose schedule is usually very heavy. Also, it may happen at times that the physician forget or run out of either the antiseptic liquid or the absorbent cotton or both and that none may be available on site.

It is therefore a main object of the invention to provide a hypodermic syringe which is complete by itself, that  
30 is, which includes the necessary antiseptic liquid and a wad of absorbent material.

A further object of the invention resides in the provision of a protective assembly for the needle of a hypodermic

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injection syringe which also includes a reserve of absorbent material and antiseptic liquid.

Still another object of the invention consists in providing a disposable syringe which is time saving for the physician who has to use it and which can be manufactured at a relatively low cost on account of its simplicity and of the materials from which it can be made.

The above noted objects may be attained with a protective assembly for the needle of a hypodermic injection syringe, the latter being provided with a piston cylinder adapted to contain the substance to be injected and with a needle which projects from one end thereof, the assembly comprising an outer envelope having an open end adapted to snugly fit over the end of the piston cylinder from which the needle projects; a protective substantially conical inner cover within said envelope housing the needle and having the wide end thereof secured to said open end of said envelope; a wad of absorbent material at the other end of the envelope and removable cap means closing said other end of the envelope. To facilitate removal of the wad, means are also provided for forcing it out of the envelope.

Further objects and other advantages of the invention will become apparent as the following description proceeds of two illustrative embodiments of the invention, having regard to the annexed drawings wherein:

Fig. 1 illustrates, in a perspective view, a syringe provided with a protective assembly made according to the invention;

Fig. 2 shows the same assembly, in perspective view, the part being shown in exploded relationship;

Fig. 3 is a view of one end of the assembly as the wad is being removed;

Fig. 4 is a longitudinal cross-section of the assembly

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of the invention as shown mounted on a syringe of a known type;

Fig. 5 is a perspective exploded view of a second embodiment of the invention.

As illustrated in Fig. 1, the protective assembly 1 of the invention is for mounting over the needle end of a syringe 3 of a known type. For appearance purposes and also to avoid the assembly from coming off the syringe 3, the former should be formed as a sort of extension of the piston cylinder of syringe 3 in a manner explained hereinafter.

10       The assembly of the invention is for use with a standard hypodermic injection syringe formed of a cylinder 5 adapted to receive the substance to be injected and within which slidably moves a piston 7 provided with the usual operating piston rod 9 having the usual finger disc or plate 11 which is used in conjunction with a pair of finger grip flanges 13 laterally projecting from cylinder 5.

      The cylinder 5 is preferably made of a thermoplastic material such as polyethylene whereas, for greater rigidity, piston rod 9 can be made of a thermosetting resin such as  
20   polystyrene and perhaps have a cruciform shape in cross-section.

      In the embodiment shown in fig. 4 a needle 17 is fixedly mounted at the end of the tapered projection 18 or, alternatively, can be removably mounted over said projection which is dimensioned to accept standard needles with a metal or plastic collar. At the same end of cylinder 5 a recess 19 is provided, for a purpose to be explained later on.

      The protective assembly 1 of the invention is formed of a generally cylindrical envelope 15, open at both ends, with one end adapted to snugly fit over the recessed end 19 of piston  
30   cylinder 5. This is done in such a way that the outer surface of envelope 15 becomes flush with the outer surface of piston cylinder 5 when assembly 1 is mounted on the syringe 3.

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Within this envelope 15 is a generally conical cover 21 adapted to be mounted over needle 17 and secured, at the wide end thereof, to the outer envelope 15 as at 23.

Preferably, both cylindrical envelope 15 and conical cover 21 are made of a thermoplastic material such as polyethylene whereby cover 21 may be secured over envelope 15 by heat seal at 23.

Envelope 15 is substantially longer than inner cover 21 whereby to leave, at the outer free end, a space for the reception of a wad 25 of absorbent material such as cotton impregnated with an antiseptic liquid like ether or alcohol.

The end of cylindrical envelope 15 away from end 23 is closed by any suitable means, preferably a flat disc 27 of thermoplastic material, preferably polyethylene, heat sealed to the end periphery of cylindrical envelope 15. Finally, disc 27 of the said removable cap means is provided with at least one finger grip 29 which projects laterally away from cylindrical envelope 15 and which serves for peeling off the disc from the envelope.

Preferably also, the assembly of the invention is provided with chord means for pulling wad 25 out of envelope 15. As shown more particularly in Fig. 2, the chord means is a chord 31 which has one end secured within wad 23 (having the form of a cylindrical plug), projects out at the inner end of the plug, folds and is drawn towards the outer end and is finally folded thereover whereby to become accessible when cap means 27, 29 is removed. Fig. 4 particularly illustrates chord 31 as being folded over the outer end of the plug. Fig. 3 illustrates how plug 25 may be removed from cylinder or envelope 15.

In the particular embodiment illustrated in Fig. 5, a cup-shaped plastic container 33 provided at the open end

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thereof, with a lateral flange 35, having a radial extension 37, heat-sealed to the outer surface of flat head or disc 11 of the syringe. A wad 39 of absorbent cotton is inserted within the cup-shaped container 33 prior to heat sealing on head 11. As in the previous case, wad 39 is filled with an antiseptic liquid. It will also be noted that radial extension 37 may be used as a finger grip to peel off container 33 from the said head 11.

The embodiments just described are illustrative only of the invention and it should be understood that various  
10 modifications may be made thereto without departing from the spirit of the invention, the scope of which is set forth in the appended claims.

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The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A protective assembly for the needle of a hypodermic injection syringe having a piston cylinder adapted to contain the substance to be injected and from one end of which said needle projects, said assembly comprising:

a) an outer envelope having an open end adapted to snugly fit over the end of said cylinder from which said needle projects;

b) a protective substantially conical inner cover within said envelope, housing said needle and having the wide end thereof secured to said open end of said envelope;

c) a wad of absorbent material at the other end of said envelope, and

d) removable cap means closing said other end of said envelope.

2. A protective assembly for the needle of a hypodermic injection syringe having a piston cylinder adapted to contain the substance to be injected and from one end of which said needle projects, said assembly comprising:

a) an outer cylindrical envelope having an open end adapted to snugly fit over the end of said cylinder from which said needle projects;

b) a protective substantially conical inner cover within said envelope, housing said needle and having the wide end thereof secured to said open end of said envelope;

c) a wad of absorbent material at the other end of said envelope;

d) means for forcing said wad out of said envelope and

e) removable cap means closing said other end of said envelope.



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3. A protective assembly for the needle of a hypodermic syringe having a piston cylinder, made of plastic material, adapted to contain the substance to be injected and from one end of which said needle projects, said assembly comprising:

a) a plastic cylindrical envelope having an open end adapted to snugly fit over the end of said cylinder from which said needle projects;

b) a protective substantially conical plastic inner cover within said envelope housing said needle and having the wide end thereof integrally joined to said open end of said envelope;

c) a wad of absorbent material filled with antiseptic liquid disposed at the other end of said envelope;

d) chord means for pulling said wad out of said envelope, and

e) removably cap means closing said other end of said envelope.

4. An assembly as claimed in claim 3, wherein said removable cap means comprises a circular flat disc of plastic material fitting over and heat-sealed to said other end of said envelope; said disc having a finger grip member radially projecting therefrom whereby it may be peeled off said envelope by pulling on said member.

5. An assembly as claimed in claim 3, wherein said wad is a cylindrical plug and said chord means is a chord having one end secured within said plug, projecting out at the inner end thereof, folded and drawn toward the outer end and again folded thereover whereby to be of ready access when said cap means is removed.

6. A hypodermic syringe comprising:

a) a plastic piston cylinder adapted to contain the

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substance to be injected and formed with a peripheral axial recess of predetermined depth about one end thereof;

b) a needle mounted on said one end;

c) a plastic cylindrical envelope having an open end; the wall thickness of said envelope at said open end being substantially equal to said predetermined depth; said open end being of such a diameter to snugly fit in said recess whereby the outer surfaces of said envelope and said cylinder are substantially flush;

d) a protective substantially conical plastic inner cover within said envelope housing said needle and having the wide end thereof integrally joined to said open end of said envelope;

e) a wad of absorbant material filled with antiseptic liquid disposed at the other end of said envelope;

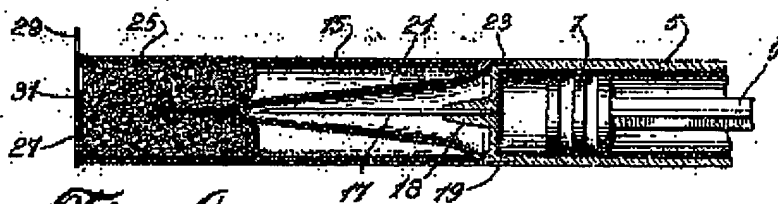
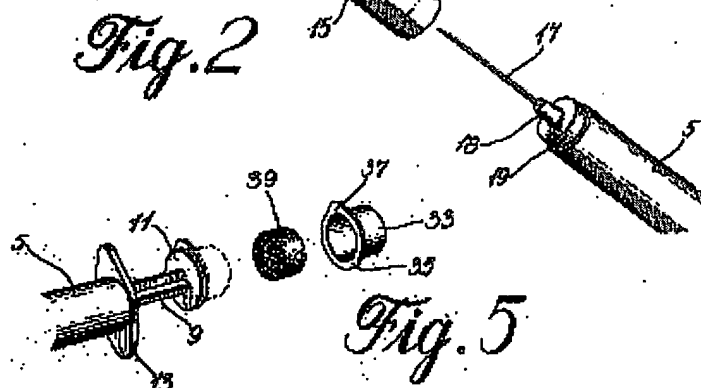
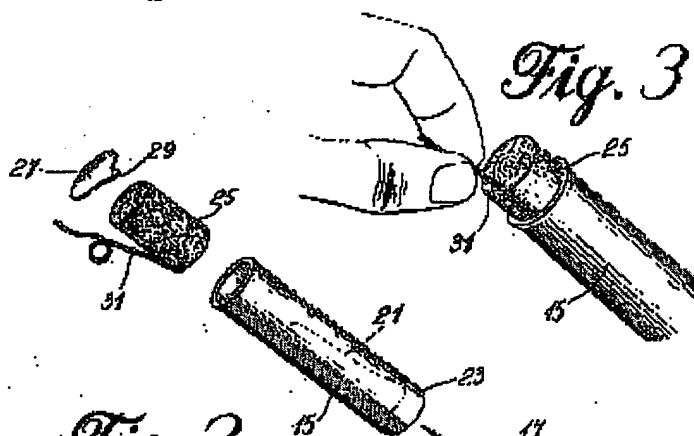
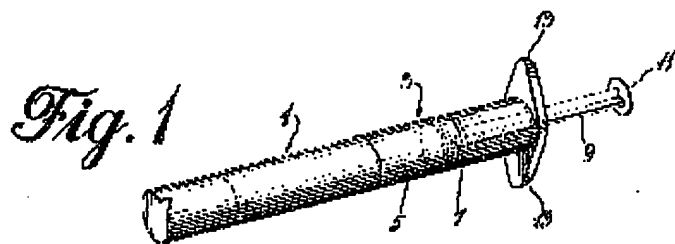
f) chord means for pulling said wad out of said envelope, and

g) removably cap means closing said other end of said envelope.

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*Fig. 4*

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